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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,147	07/24/2003	Jon B. Jansma	35481	9316

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EXAMINER

COLON, GERMAN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/626,147	Applicant(s) JANSMA, JON B.	
	Examiner German Colón	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 10 and 12-15 is/are rejected.
- 7) ☒ Claim(s) 8 and 11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/24/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-7, 10, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino (US 5,166,456) in view of Vose et al. (US 6,472,812).

Regarding claim 1, Yoshino discloses a phosphor layer for a mercury vapor discharge lamp comprising 10-50 wt% halophosphors (chlorophosphate) and 50-90 wt% rare earth phosphors, said weight percents being based on the total phosphor weight of said phosphor layer (see at least comparative example 5); said composition having an Ra value of 79. Yoshino is silent regarding the structure of the lamp.

However, in the same field of endeavor, Vose discloses a mercury vapor discharge lamp (see Fig. 1) comprising a light-transmissive envelope 200, means 115 for providing a discharge, a discharge-sustaining fill gas; a phosphor layer containing halophosphors and rare earth phosphors; and a barrier layer (see Col. 3, lines 58-64). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the structure disclosed by Vose as the discharge lamp of Yoshino, since Vose teaches this structure to increase the conversion of UV to visible light by (the barrier layer) reflecting back to the phosphor the UV radiation not absorbed. Also, it is well known in the art that discharge lamps comprise envelopes, fill gas, electrodes and phosphor layers.

The Examiner notes that while Yoshino does not consider the phosphor composition a preferred one, the references anticipates such composition.

Regarding claim 2, Yoshino discloses the phosphor layer comprising 10-50 wt% halophosphors (chlorophosphate) and 50-90 wt% rare earth phosphors, said weight percents being based on the total weight of said phosphor layer (see at least comparative example 5).

Regarding claims 4-7, Yoshino discloses an Ra value of 79.

Referring to claims 10 and 15, Yoshino-Vose discloses the claimed invention except for the limitation of the phosphor layer having a coating of 1-2 mg/cm². However, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to provide a coating of 1-2 mg/cm², since discovering an optimum value of a result variable is considered within the skills of the art. Further, an artisan would entertain the idea of varying the layer thickness on the basis of the desired light emission and cost of the device.

Referring to claim 12, Yoshino-Vose discloses the lamp having no more than one phosphor layer.

3. Claims 1-5, 9, 10 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al. (US 4,751,426) in view of Vose et al. (US 6,472,812).

In regards to claims 1 and 2, Hoffman discloses a mercury vapor discharge lamp comprising a light-transmissive envelope 2, means 3 for providing a discharge, a discharge-sustaining fill gas sealed inside said envelope (see Fig. and respective description), a phosphor layer (9 or 10) inside said envelope, said phosphor layer comprising 10-50 wt% halophosphors

Art Unit: 2879

(chloroapatite phosphor) and 50-90 wt% rare earth phosphors, said weight percent being based on the total weight of said phosphor layer (see Col. 4, lines 2-58). Hoffman is silent regarding the discharge lamp comprising a barrier layer.

However, in the same field of endeavor, Vose discloses a lamp having a barrier layer and teaches said barrier to increase the conversion of UV to visible light by reflecting back to the phosphor the UV radiation not absorbed (see Col. 3, lines 58-64). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a barrier layer to the lamp of Hoffman, in order to increase the conversion of UV to visible light by reflecting back to the phosphor the not-absorbed UV radiation.

In regards to claims 3 and 13, Hoffman-Vose discloses the phosphor comprising 60-80 wt% of rare earth phosphors, but is silent regarding the halophosphor being in a range of 20-40 wt%. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the halophosphor in a range of 20-40 wt%, since optimization of workable ranges is considered within the skill of the art. Further, an artisan would entertain the idea of varying the phosphor composition on the basis of the desired light color or chromaticity coordinates X,Y).

In regards to claims 4 and 5, Hoffman-Vose discloses the lamp having an Ra value of 73.

In regards to claims 9 and 14, Hoffman-Vose discloses the claimed invention except for the limitation of the lamp yielding 2600-2900 lumens at 100 hrs, when provided in a 4 foot fluorescent lamp.

However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a lamp yielding 2600-2900 lumens at 100 hrs, since optimization of workable ranges is considered within the skill of the art.

Referring to claims 10 and 15, Hoffman-Vose discloses the claimed invention except for the limitation of the phosphor layer having a coating of $1\text{-}2\text{ mg/cm}^2$. However, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to provide a coating of $1\text{-}2\text{ mg/cm}^2$, since discovering an optimum value of a result variable is considered within the skills of the art. Further, an artisan would entertain the idea of varying the layer thickness on the basis of the desired light emission and cost of the device.

Allowable Subject Matter

4. Claims 8 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 8, the references of the Prior Art of Record fail to teach or suggest the combination of the limitations as set forth in the claim, and specifically comprising the limitation of the rare earth phosphor in said phosphor layer being a rare earth phosphor blend, the blend including 33-60 wt% red-emitting, 25-40 wt% green-emitting, and 5-30 wt% blue-emitting.

Regarding claim 11, the references of the Prior Art of Record fail to teach or suggest the combination of the limitations as set forth in the claim, and specifically comprising the limitation of "said halophosphor being Ca halophosphate activated with Mn and Sb, and wherein the rare earth phosphor comprises YEO and SECA.

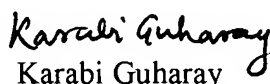
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 571-272-2451. The examiner can normally be reached on Monday thru Thursday, from 8:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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